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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)				
•	10/512,132	HANNAY, ALEXANDER				
Office Action Summary	Examiner	Art Unit				
•	Christopher E. Leiby	2629				
The MAILING DATE of this communication app		orrespondence address				
Period for Reply						
A SHORTENED STATUTORY PERIOD FOR REPLY WHICHEVER IS LONGER, FROM THE MAILING DA  - Extensions of time may be available under the provisions of 37 CFR 1.13 after SIX (6) MONTHS from the mailing date of this communication.  - If NO period for reply is specified above, the maximum statutory period w  - Failure to reply within the set or extended period for reply will, by statute, Any reply received by the Office later than three months after the mailing earned patent term adjustment. See 37 CFR 1.704(b).	ATE OF THIS COMMUNICATION 36(a). In no event, however, may a reply be tim will apply and will expire SIX (6) MONTHS from cause the application to become ABANDONE	N. nely filed the mailing date of this communication. D (35 U.S.C. § 133).				
Status						
1) Responsive to communication(s) filed on 13 Au						
,						
3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under <i>Ex parte Quayle</i> , 1935 C.D. 11, 453 O.G. 213.						
closed in accordance with the practice under Ex parts Quaylo, 1000 0.0. 11, 400 0.0. 210.						
Disposition of Claims						
4) Claim(s) 1-45 is/are pending in the application.						
4a) Of the above claim(s) is/are withdrawn from consideration.						
5) Claim(s) is/are allowed. 6) ⊠ Claim(s) <u>1-45</u> is/are rejected.						
7) Claim(s) is/are objected to.						
8) Claim(s) are subject to restriction and/o	r election requirement.					
Application Papers						
9) The specification is objected to by the Examine	ar .					
10)⊠ The drawing(s) filed on <u>13 August 2007</u> is/are: a)⊠ accepted or b)□ objected to by the Examiner.						
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).						
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).						
11)☐ The oath or declaration is objected to by the Ex	kaminer. Note the attached Office	e Action or form PTO-152.				
Priority under 35 U.S.C. § 119						
12)⊠ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).						
a)⊠ All b)☐ Some * c)☐ None of:						
1. Certified copies of the priority documents have been received.						
2. Certified copies of the priority documents have been received in Application No						
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).						
* See the attached detailed Office action for a list of the certified copies not received.						
Attachment(s)						
1) Notice of References Cited (PTO-892)	4) Interview Summary					
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date.  5) Notice of Informal Patent Application						
Paper No(s)/Mail Date 6) Other:						

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#### **Detailed Action**

Claims 1-43 are currently amended, claims 44-45 are new, and claims
 1-45 are pending.

#### Response to Argument

2. The amendment filed 08/13/2007 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: "without simultaneous actuation of any of the other sensors".

Applicant is required to cancel the new matter in the reply to this Office Action.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Therefor, in accordance with the amendment of independent claim 1, claims 21 and 22 are rejected as obvious over prior art and not in combination for reasons stated below.

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Applicant's arguments with respect to claims 23 and 24 have been considered but are moot in view of the new ground(s) of rejection based on new amendements.

Accordingly this action is made final.

#### Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The amendment to independent claim 1 recites "without simultaneous actuation of any other sensor". There is no phrase or reasonable consideration of the amended subject matter within the disclosure of the application prior to the filed amendment.

### Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35U.S.C. 102 that form the basis for the rejections under this section made in thisOffice action:

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A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 23-24, and 43 are rejected under 35 U.S.C. 102(b) as being anticipated by Thompson.

Regarding independent claim 23, Thompson discloses a method of providing N-way directional control using more than N/2 but less than N sensors in an array (figure 1c keys are shown in an array) to provide N different directional control signals, wherein each of the N different directional control signals is a member of either a first set of directional control signals (figure 1c "1" and "2") or a second different set of directional control signals (figure 1c, "4, 5, 7, and 8"), the method comprising: associating each one of the sensors in the array with only one directional control signal from the first set of directional control signals; associating each of the control signals of the second set with a pair of sensors without associating each of the pairs of sensors in an array with a directional control signal of the second set; detecting when a sensor or sensors of the array are actuated; and providing the directional control signal associated with the detected actuated sensor(s) (figure 1c discloses 6 keys with associated interpretation protocols for playing games, 1=up, 2=down, 4=7=left, and 5=8=right; figure 5d discloses simultaneous actuation of both 2 and 6; with the understanding of simultaneous key press and diagonal movements stated in claim 1 of Thompson, creates 8 way directional movement with only 6 sensors, which is greater then 4 and less then 8).

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Regarding independent claims 24 and 43, Thompson discloses a device for providing 8-way directional control, comprising a first set of sensors consisting of a first sensor adjacent a second sensor figure 1c, 1 and 4), constituting a first pair of sensors, and a third sensor adjacent the second sensor (2 and 4), constituting a second pair of sensors; and a second set of sensors, adjacent the first set of sensors, consisting of a fourth sensor adjacent a fifth sensor (7 and 8), constituting a third pair of sensors, and a sixth sensor adjacent the fifth sensor (5 and 8), constituting a fourth pair of sensors; wherein user actuation of a respective one of at least four of the six sensors provides for control in a respective one of four different directions and user actuation of each of the first, second, third and fourth pairs of sensors provides for control in a respective one of the remaining four different directions (figure 1c discloses 6 keys with associated interpretation protocols for playing games, 1=up, 2=down, 4=7=left, and 5=8=right; figure 5d discloses simultaneous actuation of both 2 and 6; with the understanding of simultaneous key press and diagonal movements stated in claim 1 of Thompson, creates 8 way directional movement with only 6 sensors, which is greater then 4 and less then 8).

## Claim Rejections - 35 USC § 103

- 7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
  - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

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said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-6 and 8-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levy (US Patent 5,973,621) in view of Kling (US Patent 7,265,745).

Regarding **claim 1**, Levy discloses a hand portable device (*column 1 lines* 7-9) comprising: a user input device comprising a plurality of sensors in an array for tactile actuation by a user (*column 4 lines 48-49*; a controller (*column 3 line* 17 "electronics" figure 14 reference PIC 16C84) responsive to the actuation of a sensor by itself or the simultaneous actuation of a pair of adjacent sensors, the controller being configured to produce one of a first set of control signals upon actuation of a sensor by itself, or one of a second set of control signals upon simultaneous actuation of an adjacent pair of sensors (*column 3 lines 17-40*); and wherein each sensor of the array is associated with only one of the control signals of the first set and wherein each of the control signals of the second set is associated with an adjacent pair of sensors in the array, but not every one of the adjacent pairs of sensors (*switches*) is associated with a control signal of the second set (*column 1*, lines 12-18 and abstract).

However, Levy does not disclose wherein simultaneous actuation of an adjacent pair of sensors without simultaneous actuation of any of the other sensors.

Kling does disclose wherein only actuation of only adjacent keys (figure 2 reference column 2, lines 14-16 disclose specifically 1 key "E" can be input by depressing both "3" and "I" without pressing any other keys.

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It would have been obvious to one skilled in the art at the time of the invention to combine Levy's system of input with the layout of Kling for a different method of reduced key inputs.

Regarding **claim 2**, levy and Kling disclose a device, wherein the plurality of sensors comprises a first set of sensors consisting of a first sensor (Kling: figure 2 reference key "1") adjacent a second sensor (Kling: figure 2 reference key "2"), constituting a first pair of sensors, and a third sensor (Kling: figure 2 reference key "3") adjacent the second sensor, constituting a second pair of sensors; and a second set of sensors consisting of a fourth sensor (Kling: figure 2 reference key "4") adjacent a fifth sensor (Kling: figure 2 reference "5"), constituting a third pair of sensors, and a sixth sensor (Kling: figure 2 reference "6") adjacent the fifth sensor, constituting a fourth pair of sensors.

Regarding **claim 3**, Levy and Kling discloses a device wherein the pairs of sensors are located and arranged to be simultaneously actuated by a user using one digit (Levy: *column 2 lines 55-67 figure 10 and figure 12 and Kling: column 1*, *lines 63-67*).

Regarding **claim 4**, Levy discloses a device wherein the first set of sensors (switches) is adjacent the second set of sensors (*figure 10: as written* above the switches are arranged in a matrix and therefor any set of sensor inside of the matrix are considered to be adjacent to each other).

Regarding **claim 5**, Kling discloses a device, wherein the controller is responsive to user actuation of a respective one of at least four of the six sensors to provide a respective one of four different control signals and is responsive to

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user actuation of a respective one of the first, second, third and fourth pairs of sensors to provide a respective one of an additional four different control signals (*column 3, lines 63-65*).

Regarding **claim 6**, Kling discloses a device, wherein the controller is configured to produce:

- (a) a first control signal (all in reference to table 2, lower end of column 2, signal "C") in response to the actuation of a second sensor ("2"); (b) a second control signal ("A") in response to the actuation of a first sensor (1);
- (c) a third control signal (B) in response to actuation of both the first and second sensors simultaneously;
- (d) a fourth control signal (*E*) in response to the actuation of a third sensor ("3");
- (e) a fifth control signal (D) in response to the actuation of both the second and third sensors simultaneously;
- (f) a sixth control signal (K) in response to the actuation of a fifth sensor ("5");
- (g) a seventh control signal (*L*) in response to the actuation of both the fifth and sixth sensors simultaneously; and
- (h) an eighth control signal (*J*) in response to the actuation of both the fourth and fifth sensors simultaneously.

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Regarding **claim 8**, Levy and Kling disclose a device, wherein the controller comprises a detector for detecting the simultaneous actuation of keys (Levy: *column 3 lines 17-19 and Kling: column 3, lines 63-65*).

Regarding **claims 9 and 16**, Levy and Kling disclose a device, wherein the plurality of sensors is a 2 x 3 or 3 x 2 array of sensors (*figure 7a: letters E, F, G, I, J, K and corresponding switches that were associated with applicant's sensors 1-6 form a 2 x 3 matrix wherein the sensors would be for the display of Kling: which according to figure 2 is still a matrix).* 

Regarding **claim 10**, Levy discloses a device, wherein the user input device is a keypad having first, second, third, fourth, fifth and sixth keys (*figure 7a Respectively letters G, K, J, E, F, and I*) which respectively actuate the first, second, third, fourth, fifth and sixth sensors whereby the first, second, third and fourth pairs of sensors (*figure 10 shows associated switches that are used as sensors*) have corresponding first, second, third and fourth pairs of keys (*figure 7a Respectively 6, 5, 4, and 1*).

Regarding **claim 11**, Levy and Kling disclose a device, wherein each pair of keys are located and arranged to be simultaneously actuated by a user using one digit (Levy: *column 2 lines 55-67 figure 7a, Kling: column 1, line 65*).

Regarding **claim 12**, Levy disclose a device wherein the pairs of keys are located and arranged to be actuated by a user rolling or pivoting one digit (Levy: *column 2 lines 55-67 figure 7a*).

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Regarding **claim 13**, Kling discloses a device wherein the first, second and third keys are arranged curvilinearly (it would have been obvious that keys can be arranged "curvilinearly" as another display method of keys for users).

Regarding **claim 14**, Kling discloses a device wherein the first, second and third keys are arranged rectilinearly (*figure 2 keys are straight in line with* each other "rectilinearly").

Regarding **claim 15**, Kling discloses a device wherein the fourth, fifth and sixth keys are arranged substantially parallel to the first, second and third keys (figure 2 keys 1, 2, and 3 parallel with keys 4, 5, and 6).

Regarding **claim 17**, Levy discloses a device wherein the first, second, third, fourth, fifth and sixth keys occupy an area not significantly exceeding 20 mm by 15 mm (*column 3 lines 30-40*).

Regarding **claim 18**, Kling discloses a device wherein the keypad comprises a 4 x 3 array of mobile telephone keys (*figure 2*).

Regarding **claim 19**, Levy and Kling disclose a device wherein the keypad is a typist's keypad (Levy: *figure 7a and Kling: figure2*).

Regarding claim 20, Kling discloses a device having a data entry mode where the keypad including the plurality of keys are used to enter data wherein in said data entry mode the controller is responsive to the actuation of the first key and second key separately but not together to produce different control signals (figure 2 and table 2 of lower part of column 4 wherein pressing 1 and 2 separately produces signals A and C separately).

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9. Claims 7, 21, 22, 25-42, and 44-45 are rejected under 35 U.S.C. 103(a) as being anticipated by the combination of Levy and Kling, as applied to independent claim 1 and in view of Thompson (US Patent 5,236,199).

Regarding claims 21, 22, 41, and 42, Levy discloses a device comprising the first control signal causes the element to move in a first direction, the second control signal causes the element to move in a second direction and the third control signal causes the element to move in a third direction intermediate of the first and second directions (column 11 lines 13-46 figures 19-20b reference 112; force sensor provides control signals corresponding to the direction of the force pushed onto 112).

Levy does disclose that the invention is for input devices for small electronic products, particularly for communications and data entry (*column 1 Field of invention*).

However, Levy does not disclose specifically that a display for displaying an image including an element moving in the display or specifically that notational viewing corresponds to control signals 1-3.

Thompson discloses an interpretation protocol that with the keypress of a telephone keypad movements are created for games (figure 1c and column 4, lines 48-62).

It would have been obvious to one skilled in the art at the time of the invention that if Levy discloses a cursor control system that a display for moving the cursor would be an obvious addition to the system (wherein the cursor would be the moving element).

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It also would have been obvious to one skilled in the art at the time the invention was made that to have an input device with cursor control, that to play particular types of phone games that any number of interpretation protocols could understand movements like Thompson.

Regarding **claims 7 and 38**, Kling and Thompson disclose a device, wherein the controller, in response to the actuation of only the fourth sensor, is configured to produce the second control signal and in response to actuation of only the sixth sensor is configured to produce the fourth control signal (Kling: figure 2 and Thompson: figure 1c wherein the keypad used for the interpretation protocols would be Kling's simultaneous interpretation keypad).

In combination of Thompson and Kling: keys "7" and "4" would be the left arrows of Thompson. Key "1" would be up, "2" would be down, and "5" and "8" would be right

It would have been obvious to one skilled in the art at the time of the invention that using Kling's simultaneous keypad system that there are many different combinations of control signals outputted from many different simultaneous keys (2 or less). With Thompson figure 2 there are two left keys and two right keys. While pressing up and either one of the right keys would produce a diagonal direction control signal that would be the same for either right key pressed in combination of the up key.

Regarding **claim 25**, Levy and Kling discloses a device wherein the pairs of sensors are located and arranged to be simultaneously actuated by a user

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using one digit (Levy: column 2 lines 55-67 figure 10 and figure 12 and Kling: column 1, lines 63-67).

Regarding **claim 26**, Levy and Kling disclose a device, wherein the plurality of sensors is a 2 x 3 or 3 x 2 array of sensors (*figure 7a: letters E, F, G, I, J, K* and corresponding switches that were associated with applicant's sensors 1-6 form a 2 x 3 matrix wherein the sensors would be for the display of Kling: which according to figure 2 is still a matrix).

Regarding **claim 27**, Levy discloses a device, wherein the user input device is a keypad having first, second, third, fourth, fifth and sixth keys (*figure 7a Respectively letters G, K, J, E, F, and I*) which respectively actuate the first, second, third, fourth, fifth and sixth sensors whereby the first, second, third and fourth pairs of sensors (*figure 10 shows associated switches that are used as sensors*) have corresponding first, second, third and fourth pairs of keys (*figure 7a Respectively 6, 5, 4, and 1*).

Regarding **claim 28**, Levy and Kling disclose a device, wherein each pair of keys are located and arranged to be simultaneously actuated by a user using one digit (Levy: *column 2 lines 55-67 figure 7a, Kling: column 1, line 65*).

Regarding **claim 29**, Levy disclose a device wherein the pairs of keys are located and arranged to be actuated by a user rolling or pivoting one digit (Levy: column 2 lines 55-67 figure 7a).

Regarding **claim 30**, Kling discloses a device wherein the first, second and third keys are arranged curvilinearly (it would have been obvious that keys can be arranged "curvilinearly" as another display method of keys for users).

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Regarding **claim 31**, Kling discloses a device wherein the first, second and third keys are arranged rectilinearly (*figure 2 keys are straight in line with each other "rectilinearly"*).

Regarding **claim 32**, Kling discloses a device wherein the fourth, fifth and sixth keys are arranged substantially parallel to the first, second and third keys (figure 2 keys 1, 2, and 3 parallel with keys 4, 5, and 6).

Regarding **claim 34**, Levy discloses a device wherein the first, second, third, fourth, fifth and sixth keys occupy an area not significantly exceeding 20 mm by 15 mm (*column 3 lines 30-40*).

Regarding **claims 35 and 33**, Kling discloses a device wherein the keypad comprises a 4 x 3 array of mobile telephone keys (*figure 2*).

Regarding **claim 36**, Levy and Kling disclose a device wherein the keypad is a typist's keypad (Levy: *figure 7a and Kling: figure2*).

Regarding **claim 37**, Kling discloses a device, wherein the controller is configured to produce:

- (a) a first control signal (all in reference to table 2, lower end of column 2, signal "C") in response to the actuation of a second sensor ("2"); (b) a second control signal ("A") in response to the actuation of a first sensor (1);
- (c) a third control signal (*B*) in response to actuation of both the first and second sensors simultaneously;
- (d) a fourth control signal (*E*) in response to the actuation of a third sensor ("3");

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- (e) a fifth control signal (D) in response to the actuation of both the second and third sensors simultaneously;
- (f) a sixth control signal (K) in response to the actuation of a fifth sensor ("5");
- (g) a seventh control signal (*L*) in response to the actuation of both the fifth and sixth sensors simultaneously; and
- (h) an eighth control signal (*J*) in response to the actuation of both the fourth and fifth sensors simultaneously.

Regarding **claim 39**, Levy and Kling disclose a device, wherein the controller comprises a detector for detecting the simultaneous actuation of keys (Levy: *column 3 lines 17-19 and Kling: column 3, lines 63-65*).

Regarding **claim 40**, Kling discloses a device having a data entry mode where the keypad including the plurality of keys are used to enter data wherein in said data entry mode the controller is responsive to the actuation of the first key and second key separately but not together to produce different control signals (figure 2 and table 2 of lower part of column 4 wherein pressing 1 and 2 separately produces signals A and C separately).

Regarding **independent claims 44 and 45**, Thompson discloses a method of providing N-way directional control using more than N/2 but less than N sensors in an array (figure 1c keys are shown in an array) to provide N different directional control signals, wherein each of the N different directional control signals is a member of either a first set of directional control signals (figure 1c "1" and "2") or a second different set of directional control signals

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(figure 1c, "4, 5, 7, and 8"), the method comprising: associating each one of the sensors in the array with only one directional control signal from the first set of directional control signals; associating each of the control signals of the second set with a pair of sensors without associating each of the pairs of sensors in an array with a directional control signal of the second set; detecting when a sensor or sensors of the array are actuated; and providing the directional control signal associated with the detected actuated sensor(s) (figure 1c discloses 6 keys with associated interpretation protocols for playing games, 1=up, 2=down, 4=7=left, and 5=8=right; figure 5d discloses simultaneous actuation of both 2 and 6; with the understanding of simultaneous key press and diagonal movements stated in claim 1 of Thompson, creates 8 way directional movement with only 6 sensors, which is greater then 4 and less then 8).

Thompson does not specifically disclose a controller.

However, Levy does disclose a controller (*column 3 line 17 "electronics"* figure 14 reference PIC 16C84) responsive to the actuation of a sensor by itself or the simultaneous actuation of a pair of adjacent sensors.

Kling does disclose wherein only actuation of only adjacent keys (figure 2 reference column 2, lines 14-16 disclose specifically 1 key "E" can be input by depressing both "3" and "I" without pressing any other keys.

It would have been obvious to one skilled in the art at the time of the invention to combine Levy's system of input with the layout of Kling for a different method of reduced key inputs for Thompson's system of interpretation protocols.

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#### Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher E. Leiby whose telephone number is 571-270-3142. The examiner can normally be reached on 8 - 4 Monday - Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alex Eisen can be reached on 571-272-7687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alexander Eisen SPE

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October 22<sup>nd</sup>, 2007